CIS 120 Quiz 8

November 12, 2014

Name: ____________________________

PennKey: ____________________________ Section: ____________________________

PennKey means letters, not numbers.
Indicate the section you’re registered for, even if you’re attending a different section.

```java
public static int[][] getInLine(int[][] lines, int items) {
    // figure out which of the lines is shortest
    int minLength = Integer.MAX_VALUE;
    int minIndex = 0;
    for (int i = 0; i < lines.length; i++) {
        int length = 0;
        for (int j = 0; j < lines[i].length; j++) {
            length += lines[i][j];
        }
        if (length <= minLength) {
            minLength = length;
            minIndex = i;
        }
    }

    // make a copy of the shortest line, then add the new customer
    int[] oldLine = lines[minIndex];
    int[] newLine = new int[oldLine.length + 1];
    for (int i = 0; i < oldLine.length; i++) {
        newLine[i] = oldLine[i];
    }
    newLine[oldLine.length] = items;

    // replace the old line with our new version
    lines[minIndex] = newLine;

    return lines;
}
```
1. Tiernan is still trying to decide which line at FroGro will be the fastest using his laborious Java array function from the last quiz. While he’s puzzling over the checkout lines, Prof. Zdancewic approaches and asks Tiernan with concern why he hasn’t been at staff meeting; Tiernan explains that he has been using an array representation to find the fastest checkout line for the past two weeks. Zdancewic wonders how Tiernan could possibly have become head TA, but he decides to help him solve the problem quickly with Collections.

What Collection-based representation of the lines might Prof. Zdancewic propose?

2. Now rewrite the method from the last quiz to use the Collection-based representation. The solution to the last quiz is printed on the other side, and the method signature is provided for you, with some types missing. As on the last quiz, you should modify your representation in place and return it as the result of the method.

```java
public static ________________ getInLine( ________________ lines, int items) {

    return lines;
}
```